Agency Range Safety Program Overview and 2007 Highlights

2007 proved to be yet another eventful and exciting year in the Range Safety realm. Before we highlight the areas covered in this year's edition, it's important to restate the goal of the NASA Range Safety Program. The program is defined in **NPR 8715.5**, *Range Safety Program*, dated 8 July 2005, and is signed by the NASA Administrator. The goal of the program is to protect the public, the workforce, and property during range operations such as launching, flying, landing, and testing launch/flight vehicles.

This goal applies to all NASA centers and test facilities and all NASA vehicle programs including expendable launch vehicles, reusable launch vehicles, unmanned aerial vehicles, and the Space Shuttle as well as any NASA-funded commercial ventures that involve range operations. We meet the goal of the NPR by mitigating and controlling hazards, such as uncontrolled vehicles, debris, explosives, and toxics associated with range operations. Of note this year is that all NASA Centers with a range safety responsibility and the Headquarters Office of Safety and Mission Assurance held a meeting to do a line-by-line review of the NPR to look at areas that need updating and suggest additions to strengthen the policy arm of NASA Range Safety.

This is the second year we've published this report in a web-based format, and our outline remains mostly unchanged from last year. Once again, we cover several areas of range safety that point to how we meet or implement the range safety program. One of our primary focuses relates to range safety training and our continuing efforts regarding the NASA Range Safety Training Program. We brought one additional class on-line in 2006, and completed the Range Safety course curriculum by bringing the Range Safety Operations Course on-line this year.

We remain extremely busy in the development, implementation, and support of range safety policy. The Constellation program is in full swing, and we've been supporting tailoring exercises with representatives from the program, the 45th Space Wing, and the Launch Constellation Range Safety Panel. We take a close look at our variance and risk process and the changes that have taken place in that arena due to fully implementing the NPR requirements. We supported several launches this year and continue to work updated agreements with our partners at the Eastern and Western Ranges.

NASA Range Safety personnel continue to support the Range Commander's Council meetings and have been involved in updating policy related to flight safety systems and flight safety analysis. A recap of these efforts is highlighted. We address our continued support to the Common Standards Working Group in efforts to codify requirements for reusable launch vehicles and updates to AFSPCMAN 91-710, *Range Safety User Requirements*; 91-711, *Launch Safety Requirements for AFSPC Organizations*; and 91-712, *Launch Safety Software and Computing System Requirements*. Unmanned aerial vehicle policy development for operations at the Eastern Range is highlighted as well as continuing efforts regarding several challenges that we faced in the flight safety systems realm this year.

The Kennedy Space Center Range Safety Program was the focus of headquarters-sponsored Institutional, Facilities, and Operations Audit and we provide a synopsis of these efforts in this report. One area that received a lot of attention this year was the plan for development of a common risk analysis tool for all NASA Range Safety efforts. We discuss this effort in depth. We address launch operations at Kennedy Space Center, the Eastern and Western Ranges, Dryden Flight Research Center, and Wallops Flight Facility.

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One area that continues to hold the interest of many in the range safety community is emerging range safety technology. Several articles focus on efforts that have taken place over the past year.

We once again provide insight to some special interest items, specifically the effort on the Eastern Range regarding Space Florida, expendable launch vehicle payload safety NPR development progress, and NASA Range Safety support to educational scientific balloon releases.

We wrap up this issue with range safety reports from the NASA Centers that were actively involved with range safety issues throughout the year. The graphic below gives a brief overview of the major topics contained in this report. Feel free to migrate directly to any topic by selecting items that are of interest.